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BUREAU OF AGRICULTURAL CHEMISTRY AND ENGINEERING
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Accidents.

Be careful. By Richard W. Thrush. Montana farmer. v.28, no.8. December 15, 1940. p.3, 21.

Farm accidents in Alabama, 1932 to 1938. Labor review. v.51, no.1. July 1940. p.109-111.

Prediction and control of accidents. By Dr. Charles A. Drake. Scientific monthly. v.51, no.1. July 1940. p.74-76.

Safety on the farm. By Wm. A. Wilson. Farm bureau monthly. v.19, no.11. November 1940. p. 18.

Agricultural Products.

New uses for agricultural products. By A. P. Yerkes. Northwest farm equipment journal. v.54, no.10. October 1940. p.23-26.

Agricultural Engineering.

Farm engineering. By J. E. Bullard. New England homestead. v.113, no.23. November 16, 1940. p.2,11.

Place of agricultural engineers in farm chemurgic development. Agricultural engineering. v.21, no.9. September 1940. p.361-362, 366. Discussion by J. B. Davidson, L. J. Fletcher, Dr. E. C. Lathrop, Harry Miller.

Agriculture.

Agriculture and our industry. By Wheeler McMillen. Paint, oil and chemical review. v.102, no.24. November 21, 1940. p.20,22,24.

Some major agricultural problems of Texas. By Dr. A. B. Cox. Acco press. v.19, no.1. January 1941. p.5-9.

Barns.

Experimental dairy barn. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.43.

Building construction.

Analysis of statically indeterminate trussed structures by successive approximations. By O. T. Voodhigula. American society of civil engineers. Proceedings. v.67, no.1. January 1941. p.3-14.

Building Construction. (Cont'd.)

Writer has attempted to simplify classical method of analyzing statically indeterminate trussed structures, and to develop physical concept whereby analysis may be made rapidly by successive approximations.

Concrete cinder block cost studies. By R. A. Rothschild and W. D. Crawford. Engineering news record. v.125, no.23. December 5, 1940. p.52.

Foundation experiences, Tennessee valley authority. A symposium: Discussion. By Barton M. Jones. American society of civil engineers., Proceedings. v.67, no.1. January,1941. p.148-150.

Investigation of steel rigid frames: Discussion. By C. J. Posey. American society of civil engineers. Proceedings. v.67, no.1. January 1941. p.127-128.

Practical shear tests for foundation design. By Trent R. Dames. Civil engineering. v.19, no.12. December 1940. p.783-786. Samples extracted, sealed, and tested in original ring container by simple process give bearing values consistent with field loading checks.

Survey of foundation construction methods. By Ralph H. Chambers. Civil engineering. v.11, no.1. January 1941. p.31-34. With increasing specialization in all branches of engineering, difficulty of retaining perspective grows. Reviews of kind presented here serve to simplify task of orientation and at same time to acquaint newcomers to field with useful expedients they might otherwise overlook. Article deals primarily with foundations involving considerable penetration of unstable materials, and discusses relative applicability of different processes, construction materials, and equipment.

Building Materials.

Low costs and new products. Architectural forum. v.71, no.5. November 1939. p.403-405, adv. p.38. Experiment in steel, concrete and heat.

R-B-M reenforced brick masonry. Architectural forum. v.71, no.5. November 1939. p.367-370, adv. p.62. Uses. Advantages. Designs. Materials. Construction.

Concrete.

Concrete in sea water: a revised viewpoint needed. By Homer M. Hadley. American society of civil engineers. Proceedings. v.67, no.1. January 1941. p.33-46. Results of extended observations of concrete marine structures, along Pacific Coast of United States and Canada, are presented. No evidence is found of sea-water (sulfate of magnesium) attack on concrete; where deterioration has occurred, it has been due to other causes. It is concluded from uniform absence of sulfate attack in wide range of concretes and cements involved in these structures that special precautions against sulfate attack are needless. It is concluded, however, that in sea-water concrete every care should be exercised to use

Concrete. (Cont'd.)

sound materials, to obtain uniform density and impermeability of concrete, and to protect reinforcement from corrosion.

Expansion of concrete through reaction between cement and aggregate. By Thomas E. Stanton. American society of civil engineers. Proceedings. v.66, no.10. December 1940. p.1781-1811. Tests have demonstrated that excessive expansion of concrete may occur through chemical reactions between cements of relatively high alkali content and certain mineral constituents in some aggregates, such as certain types of shales, cherts, and impure limestones found along coast of California between Monterey Bay on north and Los Angeles County on south. New test procedure is described through which it is possible, in comparatively short time, to develop delcterious characteristics of cement-aggregate combinations similar to those reported in California study. Procedure consists of curing specimens in sealed containers at normal temperatures.

Plastic theory of reinforced concrete design. By Charles S. Whitney. American society of civil engineers. Proceedings. v.66, no.10. December 1940. p.1749-1780. Purpose of paper is to present realistic method for design of reinforced concrete members that should result in more efficient use of materials. Theory of elasticity has proved satisfactory for determination of forces acting on various sections of continuous frames or arches and much attention has been devoted to various methods of its application. Result has been general extension of its use and marked improvement in understanding, by designers of action of reinforced concrete structures. Corresponding progress has not been made in proportioning members of structure after external forces have been determined. Theory of elasticity, as applied to design of sections, is too inflexible and inaccurate to be entirely satisfactory. Writer proposes adoption of plastic theory which recognizes true characteristics of material determined by research since standard "straight-line theory" was adopted about generation ago. Plastic theory takes into account plasticity of material and is in itself sufficiently "plastic" to be adjusted empirically to actual conditions.

Recommended practice and standard specifications for concrete and reinforced concrete: discussion. By Edward C. Gould. American society of civil engineers. Proceedings. v.66, no.10. December 1940. p.1846-1848.

Cork.

Cork - a critical material. By Edward J. Detgen. Domestic commerce. v.26, no.14. October 24, 1940. p.233-236.

Corrosion.

Atmospheric corrosion of wire and wire products. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.42-43.

Cotton Gins and Ginning.

Sea-island cotton quality and ginning. The cotton ginners' journal. v.12, no.3. December 1940. p.3-4,11-12.

Cotton Machinery.

Good work of cotton driers. Farm implement news. v.61, no.18. September 5, 1940. p.34.

Crops (Drying).

Drying of grasses. By R. M. Ramp. Agricultural engineering. v.21, no.12. December 1940. p.472. Conclusions: 1. Artificial drying of immature pasture herbage in two-tray, batch drier, followed by baling, gives product which retains most of its original green color. 2. More dry matter can be obtained per acre per year by frequent clipping and drying, than by harvesting grass as sun-cured hay. 3. Frequent clipping of immature grasses increases acreage yields of protein 40 to 50 per cent over that recovered by usual haymaking procedure. 4. More than five times as much carotene was preserved through artificial dehydration as by field curing. 5. Reduction of moisture in grasses below 10 per cent by artificial drying is valueless. 6. Loss of carotene during storage in bales is most rapid during first few months, particularly in hot weather. 7. Results obtained from artificial drying of grass are very favorable, but equipment cost at present time makes it prohibitive as universal practice in Delaware.

Seed corn drying. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.39-41.

Dams.

Concrete mixing and placing on large dams. I. Organization and equipment. By Adolph J. Ackerman. Civil engineering. v.10, no.12. December 1940. p.761-763. Up-to-date information on costs and procedures for complete range of activities concerned in great construction projects of present are brought together in connected and informative way.

Distinctive features of Grand Coulee outlets. By Jacob E. Warnock. Civil engineering. v.10, no.12. December 1940. p.779-782. Model tests disclose unexpected low-pressure and spray problems and lead to modifications in conduit profiles as well as in exit and entrance details.

Masonry dams. A symposium: discussion. By Homer M. Hadley. American society of civil engineers. Proceedings. v.66, no.10. December 1940. p.1839-1845.

Masonry dams. A symposium: Discussion. By Messrs. I. Nelidov, and James B. Hays. American society of civil engineers. Proceedings. v.67, no.1. January 1941. p.141-147.

Drainage.

Drainage problems. Agricultural engineering. v.21, no.12. December 1940. p.482. Committee on Drainage of the American society of agricultural engineers, in furtherance of progress on drainage, recommends that A.S.A.E. members review and consider need for drainage research, and extend their assistance in securing such research as is needed. Following are some problems which Committee on Drainage believes should be worked on in a drainage research program: Runoff from flat lands of small area. Mole drainage. Depth and spacing of tile drains. Control of water table. Maintenance of open ditches. State drainage laws.

Maintenance of open drainage ditches. By E. A. Krekow. Agricultural engineering. v.22, no.1. January 1941. p.7-8. Summary: Few of things needed to encourage better maintenance program are as follows: 1. Revision of drainage laws. 2. Small annual levy in lieu of special assessments as now spread. 3. Interchange of equipment between drainage districts and county road maintenance departments on rental basis. 4. Permanently appointed drainage maintenance engineer whose duties would be similar to present county engineer with relation to roads. 5. Good land use practices.

Tile drainage not advocated for land overlaying an artesian basin. By Willard Gardner. Farm and home science. v.1, no.4. December 1940. p.5. This type of land can be drained by pump wells.

Dynamometers.

Electric ultramicrometer circuit as a drawbar dynamometer. By G. W. Giles. Agricultural engineering. v.21, no.12. December 1940. p.469-471.

Simple dynamometer. By M. A. Sharp. Agricultural engineering. v.22, no.1. January 1941. p.32. This dynamometer may be used to measure pull of any farm implement, and continuous recording devices may be added at very little cost.

Electricity on the Farm.

L'electrification rurale. By W. J. Lavigne. Bulletin des agriculteurs. v.26, no.12. December 1940. p.24. Rural electrification.

Make your kilowatts work. By K. G. Patrick. Successful farming. v.39, no.1. January 1941. p.15,56-57.

Rural electrification. By Harry Slattery. The agricultural situation. v.24, no.12. December 1940. p.12-13.

Use of electric energy in brooding. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.35-36.

Engineering.

Engineer and the law. By W. C. Sadler. Civil engineering. v.10, no.12. December 1940. p.775-778.

Erosion Control.

Economic consequence of conservation. By S. W. Atkins. Soil conservation. v.6, no.7. January 1941. p.165-168.

Saving soil and maintaining income. By David H. Walter. Soil conservation. v.6, no.7. January 1941. p.174-177.
Analysis of preliminary survey data.

Soil conservation. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.41-42.

Soil erosion damages public water supply. By Alexis N. Garin. Soil conservation. v.6, no.7. January 1941. p.178-180.
Two items (1) financial burden placed on municipalities in terms of expense for filtering or desilting incoming water for public use, and (2) burden placed upon municipalities in terms of depletion of reservoir storage capacity of municipal water supply systems, are discussed in some detail in article.

Farm Buildings.

Farm buildings in land-use planning. By W. A. Rowlands. Agricultural engineering. v.22, no.1. January 1941. p.25-26.

Farm Income.

Continued increase in farm income. Farm implement news. v.61, no.18. September 5, 1940. p.18. Table shows cash farm income for first six months by states.

Farm Machinery and Equipment.

Combined harvester thresher. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.41.

Don't blame the combine. Farm journal & farmer's wife. v.64, no.10. October 1940. p.24,72-74.

Equipment for cultivating corn. By C. K. Shedd and E. V. Collins. Agricultural engineering. v.22, no.1. January 1941. p.5-6. Purpose of paper is to discuss some of results obtained in investigations. This discussion will cover only equipment for cultivating surface-planted corn.

Farm machinery and farming trends. By H. B. Walker. Implement record. v.38, no.2. February 1941. p.15-16,38.
Points out place for farm machines in inevitable solution of farmer's problem.

Farm Machinery and Equipment (Cont'd.).

Field ensilage harvester. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.43-44.

Head thresher for plant breeding studies. By June Roberts. Agricultural engineering. v.22, no.1. January 1941. p.14,32.

How to align mower mechanism. By I. W. Dickerson. Washington farmer. v.65, no.11. May 23, 1940. p.18.

Low corn cutting demonstrations. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.39.

New developments in forage harvesting machines. By F. W. Duffee. Agricultural engineering. v.22, no.1. January 1941. p.11-13, 17.

New methods of haymaking. By H. J. Hopfen. Monthly bulletin of agricultural science and practice. v.31, no.6. June 1940. p.239-243. Suction conveyor is used, first to accelerate drying of grass mown and cut in field, turning it behind mower, then to load hay on trucks and lastly to transport it to loft. Herbage can be mown and hay stored same day.

New uses for agricultural products and their influence on the farm equipment industry. By Arnold P. Yerkes. Farm implement news. v.61, no.18. September 5, 1940. p.32-33.

Power driven manure spreader. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.44-45.

Progress in contour furrowing. Agricultural engineering. v.21, no.12. December 1940. p.483-484, 488.

Sugar-cane harvesters. Mechanical engineering. v.62, no.11. November 1940. p.824-825.

Washington man devises mechanical filbert husker. By Jas. B. Buman. Rural electrification exchange. v.4, no.1. First quarter, 1941. p.20.

What implement manufacturers are doing to assist soybean growers. By F. A. Wirt. Farm implement news. v.61, no.19. September 19, 1940. p.26-29.

Fats and Oils.

Processing oil seeds and nuts. Part 1.--Economics and statistics. By John F. Leahy. Southern power and industry. v.59, no.1. January 1941. p.44-48.

Feed Grinders and Grinding.

Costs of grinding grain with electric power. By Truman E. Hienton. Rural electrification exchange. v.4, no.1. First quarter, 1941. p.18.

Fences, Electric

Electric fence controllers. By G. E. Kimball. Implement record. v.37, no.12. December 1940. p.15,35.

Fertilizer Placement.

How, where, when apply fertilizers. By F. J. Hurst. Better crops with plant food. v.25, no.1. January 1941. p.15-18, 38-39.

Fire Protection.

Are you prepared against fire? Washington farmer. v.65, no. 15. July 18, 1940. p.13.

Be ready to fight farm fires. Washington farmer. v.65, no.11. May 23, 1940. p.17,20.

Dangers of farm fires. By J. E. Stanford. Southern agriculturist. v.70, no.10. October 1940. p. 38.

Fire department. Farm journal & farmer's wife. v.64, no.10. October 1940. p.28-29. Farm fire tax $16 a farm. Fire district cuts losses. Simple safeguards.

Flax.

Latest development in mechanical flax harvesters. The implement & machinery review. v.66, no.786. October 1, 1940. p.517-518.

Moisture tests with flax straw. Irish textile journal. v.6, no.8. August, 1940. p.13. Tests tabulated show moisture content of flax straw and seed bolls at various stages of handling in field.

Floods and Flood Control.

Maximum probable floods on Pennsylvania streams: discussion. By Messrs. Joseph L. Benson, H. Alden Foster, and Edgar E. Foster. American society of civil engineers. Proceedings. v.66, no.10. December 1940. p.1849-1857.

Maximum probable floods on Pennsylvania streams: Discussion. By C. S. Jarvis. American society of civil engineers. Proceedings. v.67, no.1. January 1941. p.137-140.

Flow of Water and Gases.

Discharge observations of rivers and canals. By Radha Krishna Khanna. Indian engineering. v.108, no.3. September 1940. p.66,70.

Measuring flow in open channels. By H. G. Wilm. Engineering news record. v.125, no.23. December 5, 1940. p.58.
In principle instrument resembles pitot tube in its direct measurement of depth (pressure) and velocity-head; in method of use it is similar to Clausen-Pierce "Weir Rule".

Foods, Frozen.

Food freezing in cans. By Wm. J. Finnegan. Ice and refrigeration. v.99, no.3. September 1940. p.203-206.

Frozen food for farm folks. By Raymond Hatfield. Pennsylvania farmer. v.123, no.12. December 14, 1940. p.17,22.

Quick-freeze and storage of frozen foods. By C. P. Wagner. Rural electrification exchange. v.4, no. 1. First quarter, 1941. p.10-11.

Frost Protection.

Frost protection by irrigation. By C.W. Skinner. Market growers journal. v.67, no.10. November 15, 1940. p.478.

Fuels.

Butane for farm use. By Kenneth R. Frost. Implement record. v.37, no.9. September 1940. p.11-12,22. Highest octane fuel on market requires special equipment for use in tractors. Article tells what is needed for converstion.

Wood waste for fuel--Part 2: getting the fuel to the furnace. By J. E. Hyler. Southern power & industry. v.58, no.12. December 1940. p.68-70.

Gates.

Who left that gate open? Washington farmer. v.65, no.15. July 18, 1940. p.3. Illustrations.

Glass Substitutes.

Textile fabric substitutes for window glass. The textile weekly. v.26, no.659. October 18, 1940. p.503-504.
Reports progress made in meeting a new demand.

Grain Storage.

Engineering problems in grain storage. By George J. Burkhardt. Agricultural engineering. v.21, no.12. December 1940. p.485, 488.

Grain Storage. (Cont'd.)

Research work in wheat storage. By C. F. Kelly. Agricultural engineering. v.21, no.12. December 1940. p.473-475, 476.

Small low-cost concrete grain bin. By G. B. Hanson. Concrete. v.48, no.12. December 1940. p.16,18,30. Gives construction details of 1,000-bushel reinforced concrete grain-storage bin built on Iowa farm. Flat roof is constructed of wood and paper.

Wheat storage problems in South Australia. By J. Davidson. Journal of agriculture of South Australia. v.44, no.3. October 1940. p.123-136.

Heat Production in Animals.

Heat production of farm livestock. By M. A. R. Kelley. Agricultural engineering. v.21, no.11. November 1940. p.435-436. Article is especially prepared for agricultural engineers for purpose of furnishing them with valuable basic data not readily available for reference.

Heating.

How to select and install unit heaters. Power. v.85, no.1. January 1941. p.62-64. Although tremendous number of possible combinations may make unit-heater selection and installation look complicated, general principles explained are actually simple and will enable engineer to make full use of unit-heater flexibility to solve many special heating problems encountered in factories, office buildings, stores, warehouses, hangars, etc.

Space heater heats four-room house. The stove builder. v.6, no.1. January 1941. p.42,44. Air movers above space heaters circulate heat into each room through ducts in attic.

Houses.

Primitive houses of the far east. By J. Charles Rathbun. Civil engineering. v.11, no.1. January 1941. p.23-26. "Flimsy" structures withstand the typhoon; Interesting details of houses from New Zealand to the Philippines.

Six roomsful of real home. By K. B. Huff and H. M. Dail. Successful farming. v.39, no.1. January 1941. p.14, 55-56.

Hydrology.

Hydrologic studies. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.42.

Insulation.

Determining minimum requirements of insulation. By Robert K. Thulman. Heating & ventilating. v.37, no.8. August 1940. p.34-36. Author proposes minimum requirements for insulation, based on idea that insulation should be considered as integral part of wall construction and that primary objective should be comfort as it is affected by wall surface temperatures.

Insulate for comfort and economy. By C. H. Jefferson. Michigan farmer. v.94, no.10. November 9, 1940. p.5,20.

Sssshh...this tells you how to give yourself the pleasure of quiet. House & garden. v.78, no.3, sec. 1. September 1940. p.32-33, 60-61.

What thickness insulation? By W. T. Miller. American builder. v.62, no.10. October 1940. p.86,88. Heating costs analyzed for test home with and without ample insulation.

Irrigation.

Hydraulics of sprinkling systems for irrigation. By J. E. Christiansen. American society of civil engineers. Proceedings. v.67, no.1. January 1941. p.107-125. Portable systems for sprinkling agricultural crops were first used in Sacramento Valley of California in 1931, although in 1930 there were few scattered installations in southern part of state. Sprinkling with stationary systems had been confined largely to citrus orchards and truck crops because of relatively high investment required. Low-cost portable systems, however, made sprinkling feasible method of irrigating large acreages of field crops such as beans, peas, onions, and sugar beets. In 1932 Division of Irrigation of University of California began study of sprinkling, principally to determine (1) hydraulic characteristics of rotating sprinklers, (2) loss of water by evaporation, (3) hydraulic characteristics of sprinkler lines, (4) cost of applying water by sprinkling, and (5) general success of sprinkling as a method of irrigation. Scope of paper is defined by first three of these items.

Irrigation and hydroelectric power. By J. I. Ballard. Engineering news record. v.126, no.7. February 13, 1941. p.95-97. Power installations during 1941 will set record of 1,550,000 kw. Legal and other non-technical problems affect future development of multi-purpose projects.

Irrigation for profit. By Larry Moore. Rural electrification exchange. v.2, no.3. Third quarter, 1939. p.59-60.

Man-made rain. Farm journal and farmer's wife. v.64, no.8. August 1940. p.18,20-21.

Multiple-use aspects of irrigation projects. By E. B. Debler. Civil engineering. v.11, no.2. February 1941. p.83-86. Combined development of domestic power, navigation, flood control, and recreational uses may be achieved with proper planning. Discusses number of intangible factors that are sometimes lost sight of in attempts to allocate costs in proportion to benefits.

Irrigation. (Cont'd).

Water is going onto the land. By George N. Angell. Washington farmer. v.65, no.11. May 23, 1940. p.3.

Irrigation Canals.

Hydraulic tests of Kudzu as a conservation channel lining. By W. O. Ree. Agricultural engineering. v.22, no. 1. January 1941. p.27-29. Tests described in paper were made to obtain basic data needed to facilitate rational design of conservation channels lined with kudzu. All data reported herein were obtained by testing single experimental channel at different times.

Lining irrigation canals to save water. By O. W. Israelsen. Farm & home science. v.1, no.3. September 1940. p.5,11. Object of article is to present analysis of conditions that make lining of irrigation canals financially attractive when all costs of lining, construction and maintenance must be paid by irrigation company, and justified on basis of value of water saved by lining.

Land Clearing.

Burn out the stumps with power. Washington farmer. v.65, no.17. August 15, 1940. p.5. Equipment consists of power driven blower run by low power electric or gas motor, with 16 to 18 nozzles to which lengths of hose are attached, with piece of pipe at end. Entire plant is light and easily handled and removed to new stumps. Blower and attachments may be bought separately or with electric motor attached. If bought separately, used motor of either sort may be attached. Attachment of blower and motor may be direct or by V-belt transmission. One-quarter horse power, heavy duty electric motor with speed of 1750 revolutions per minute is recommended. Blower without motor costs about $17, with electric motor attached about $28. System is adapted to fir, pine and spruce burning but not to cedar and deciduous trees.

Land clearing in the northwest. By Willard W. Troxell and Harry J. Voth. Land policy review. v.3, no.8. December 1940. p.19-24.

Mechanical replanting. By R. I. Hawson. The planter. v.21, no.10. October 1940. p.452-454. Purpose of paper is primarily to demonstrate entirely new method of land clearing.

Mechanized land clearing. By O. A. Fitzgerald. Farm journal & farmer's wife. v.64, no.10. October 1940. p.26.

Leather.

Leather - a unique material. By J. G. Schnitzer. Domestic commerce. v.26, no.11. October 3, 1940. p.185-187.

Lighting.

Review of fluorescent luminaire design. The magazine of light. v.9, no.9. November 25, 1940. p.7,23.

Lighting. (Cont'd.).

Some light on lighting. Consumers' guide. v.7, no.4. November 15, 1940. p.12-14. Tips from Department of Agriculture experts on getting the most for your money.

Milk Cooling.

Results of investigations of milk cooling. By June Roberts and Geo. H. Larson. Agricultural engineering. v.21, no.12. December 1940. p.465-467,471. Objectives of project were (1) to determine present practices in several milksheds in Kansas, (2) to determine cost, efficiency, and convenience of cooling milk by important methods now used, and (3) to study new methods which showed promise in preliminary survey.

Pest Control.

Codling moth control with electric traps. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.77-78.

Use of electric traps as a possible control for European corn borer and other field crop insects. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.72.

Plows and Plowing.

Plow trash shields. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.38.

Subsurface tillage becomes popular. Washington farmer. v.65, no. 15. July 18, 1940. p.12.

Poultry Houses and Equipment.

New low-cost poultry houses. By Leonard Westrate. Successful farming. v.39, no.1. January 1941. p.26,28. Based on use of plywood or insulation board over laminated rafters.

Power Equipment.

Power--1941 directory of manufacturers. Power. v.84, no.13. December 16, 1940. p.161-224.

Review of power and mechanical equipment. Power. v.84, no.13. December 16, 1940. p.56-100, 102, 104, 106.

Pumps.

How to select a centrifugal pump. By L. B. Abrams, Jr. Industrial power. v.40, no.1. January 1941. p.59-61,100-102. General types of centrifugal pumps are described, factors determining the pump selection are listed, and the importance of each factor explained.

Pumps. (Cont'd.).

Installation and operation of jet pumps. By F. R. Elliot and W. J. Conery. Agricultural engineering. v.22, no.1. January 1941. p.9-10.

Irrigators study pumping costs. Washington farmer. v.65, no.11. May 23, 1940. p.12. Base estimate on local conditions. It is estimated that irrigation system, including drilling, casing and testing of well, cost of pump, motor, starter, protective devices and pump-house will cost from $30 to $50 per miner's inch of capacity.

Rainfall and Run-off.

Reliability of station-year rainfall frequency determinations: Discussion. By Paul V. Hodges. American society of civil engineers. Proceedings. v.67, no.1. January 1941. p.129-132.

Runoff from small agricultural watersheds. By David W. Cardwell. Agricultural engineering. v.21, no.12. December 1940. p.479-481, 482.

Refrigeration.

Mechanical refrigeration of eggs. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.35.

Precooling of fresh fruits in refrigerator cars. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.36-37.

Psychrometric chart. By J. C. Blair. Ice and refrigeration. v.99, no.3. September 1940. p.173-176.

Refrigeration for the farm household and farm produce. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.91-92.

Refrigeration on Cars, Trucks, etc.

What the development of the refrigerator car has meant to the modern farmer. By O. O. Mills. Farmers digest. v.4, no.5. September 1940. p.26-31.

Refrigerator Lockers.

Air cleaning in locker plants. The locker patron. v.2, no.5. December 1940. p.6. Periodical shutting down of the refrigeration and thorough airing of rooms is impractical in a locker plant where all rooms are in continuous use throughout the year; so another method--which employs the gas mask principle---has been introduced for the removal of odors in locker plants.

Refrigerator Lockers. (Cont'd.).

Freezing for a better living. By R. P. Atherton. New England homestead. v.114, no.1. January 11, 1941. p.5, 13. There are some 2280 such plants now in use in the United States.

Lockers--go south. By Leon Graham. The locker patron. v.2, no.3. October 1940. p.5-7,16,20.

Piping design problems in the frozen foods locker plant. By John H. Carter. Ice and refrigeration. v.99, no.3. October 1940. p.271-276.

Refrigerated locker data. By H. H. Keener. Ice and refrigeration. v.99, no.3. September 1940. p.213. Table I. Shrinkage of meats in locker storage.

Research.

Cavalcade of research. Part II. By P. H. Tracy. The ice cream trade journal. v.36, no.5. May 1940. p.24-25, 97-99. Based on advanced research at Illinois university.

First regional agricultural "Lab" in operation soon. Implement & tractor. v.55, no.25. December 7, 1940. p.18.

Industrial research in 1940: an account of advances in foreign countries. By William A. Hamor. Industrial and engineering chemistry. News Edition. v.19, no.2. January 25, 1941. p.57-72.

Solution of agricultural problems is dependent upon research. Farm and home science. v.1, no.4. December 1940. p.6-7, 10.

Year in research. By N. A. Bowers. Engineering news record. v.126, no.7. February 13, 1941. p.101-104. Broadening horizons for the civil engineer indicated by 1940 advances in fields of structures, cement and concrete, highways, hydraulics, soils and structural welding.

Reservoirs.

Capacity requirements and design of distribution reservoirs. By R. C. Kennedy. Journal of the American water works association. v.32, no.11. November 1940. p.1819-1833.

Farm earth moving as applied to pond building. By W. A. Harper. Agricultural engineering. v.22, no.1. January 1941. p.19-24. Paper deals principally with earth moving. Mention is made of design, materials, and other construction operations only as they apply to main topic. Currently available publications on general subject of farm ponds are listed at end of paper.

Reservoirs. (Cont'd.).

John Martin reservoir project. Engineering news record. v.125, no.19. November 7, 1940. p.56-59. John Martin dam (formerly Caddoa Dam) on Arkansas River in southeastern Colorado, is one of series of large projects being built for flood control and water conservation in Great Plains area. Project, which will reduce all floods of record in upper river to maximum of 10,000 cfs, includes combination concrete and earthfill dam with overflow spillway, 20 miles of relocation of main line of Santa Fe Ry., minor highway changes, abandonment of village of Caddoa, and special flood protection for Fort Lyon veterans hospital located in upper limb of reservoir area.

River Control.

Chicago river control works: Discussion. By H. P. Ramey. American society of civil engineers. Proceedings. v.66, no.10. December 1940. p.1833-1835.

River development and control. By Harold W. Richardson. Engineering news record. v.126, no.7. February 13, 1941. p.98-100. Continuation of large projects already under way and the start of authorized new work kept construction activity in river control at a high rate during 1940.

Roofs.

Metal sheets for roofing, siding, and ceilings. By Ray Crow. Agricultural engineering. v.22, no.1. January 1941. p.15-17.

Rubber.

Goodyear plans increase in synthetic rubber. Farm implement news. v.61, no.18. September 5, 1940. p.41. Chemigum is derived from petroleum, through cracking process. Tires made of this chemical rubber give superior performance to those made of German Buna, and equal to those made of natural rubber. They have been tested in a rigorous program since 1937. Important among advantages of Chemigum are its increased tensile strength, resistance to aging, abrasion and oils, and fact that it may be processed more easily than Buna, utilizing in general same production methods and equipment currently in use with natural rubber. Chemigum is more resistant to oxydation than natural rubber. It also has possibilities for blending with natural rubber, which would serve to extend limited supply of crude rubber.

Rural Libraries.

Agricultural libraries: an international survey. By S. v. Frauendorfer. Monthly bulletin of Agricultural science and practice. v.31, nos. 7 & 8. July & August 1940. p.255-264. Conclusions and suggestions for more useful and rational organization of agricultural library service are given.

Silt.

Silt samplers compared in special tests. By David S. Jenkins. Civil engineering. v.11, no.1. January 1941. p.3-6. Silt sampling, still young technique, has nevertheless developed into full-grown branch of civil engineering field work comparable to stream gaging and snow surveying. Instruments for this work have been used and modified by many agencies throughout country until practice has finally drifted toward acceptance of relatively few types. Author has selected five of these and subjected them to careful and thorough tests designed to evaluate their relative suitability under practical operating conditions.

Slaughtering.

Good butchering equipment leads to better cured meats. Utah farmer. v.60, no.9. December 10, 1940. p.7.

Soil Moisture.

Effect of exchange sodium on the moisture equivalent and the wilting coefficient of soils. By Frank M. Eaton and Charles R. Horton. Journal of agricultural research. v.61, no.6. September 15, 1940. p.401-425.

Soil Sterilization.

Electric soil sterilization. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.37.

Soils.

Laboratory investigations of soils at Flushing Meadow park. By Donald M. Burmister. American society of civil engineers. Proceedings. v.67, no.1. January 1941. p.15-32. Problems encountered in reclamation and development of site arise from peculiar nature of soils of meadow, which are quite typical of such tidal marsh deposits. Tests included routine studies to determine general physical character, and consolidation and shear tests to determine behavior characteristics of materials encountered. They were made primarily to furnish information on what could be done and how it should be done. Tests and their interpretation are discussed in relation to these problems, and certain suggestions are made as to correlation of test results which permit use of data obtained from simpler tests as basis for predicting more general behavior of soils.

Storage of Farm Produce.

Hay storage. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.43.

Storing grass silage. By Harry S. Besley. New Jersey agriculture. v.22, no.6. November-December, 1940. p.2-3.

Swine Houses and Equipment.

Electric pig brooders. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.34-35.

Practical hog houses for Indiana. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.44.

Terracing.

Terrace dimension changes and the movement of terrace ridges. By L. H. Schoenleber. Agricultural engineering. v.21, no.12. December 1940. p.477-478.

Tires.

Care and service of farm tires. By W. Wetherbee. Implement record. v.38, no.2. February 1941. p.14,48.

How to get the most from--rubber tractor tires. By F. W. Peikert. The furrow. v.45. November-December 1940. p.4,12.

Liquid wheel weights. By R. U. Blasingame. v.123, no.11. November 30, 1940. p.4.

Rubber tires for tractors and farm implements. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.39.

Tractors.

Farm tractor electrical equipment. By William H. Crouse. Implement record. v.37, no.12. December 1940. p.13-14. Explains operation points.

Master power take-off guard assembly numbers for various make tractors. Farm implement news. v.62, no.3. February 6, 1941. p.36. All 1941 production farm tractors except Fords are scheduled to be factory equipped with master guards or shields to fit the telescoping shielding on power take-off operated machines. Older model tractors should be equipped with guards wherever possible. Some cannot be, and such are not included in this table.

Production and sales of tractors, combines and threshers in 1940. Farm implement news. v.62, no.3. February 6, 1941. p.12. Official preliminary report by U. S. Census Bureau.

Tractor, combine, thresher data. Farm implement news. v.62, no.3. February 6, 1941. p.13. Changes shown by production and sales report for 1940.

Winter care of the tractor. By R. U. Blasingame. Michigan farmer. v.94, no.10. November 9, 1940. p.22.

Ultra-Violet Rays.

Study of effect of ultra-violet irradiation on growing chicks and laying pullets. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.38.

Ventilation.

Forced ventilation and temperature control for individual laying cage poultry houses. By J. C. Scott. Rural electrification exchange. v.2, no.3. Third quarter, 1939. p.57, 66.

Livestock comfort and cash depend on ventilation. By Lee Goode. Successful farming. v.38, no.12. December 1940. p.58-59.

Poultry house ventilation. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.42.

Walls.

Adoption of new technical methods in wall construction for rural buildings. By H. J. Hopfen. Monthly bulletin of agricultural science and practice. v.31, nos. 7 & 8. July & August 1940. p.273-276. Use of hollow blocks of brick concrete offer following advantages: (1) Absence of joins passing through entire thickness of wall. (2) Low consumption of mortar, which, being applied only to filled ends, dries up very quickly. (3) Good thermal-insulation. (4) Economy of material.

Water Heaters.

Electric dairy water heaters. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.36.

Solar heaters for service water. By Andre Merle. Heating & ventilating. v.37, no.8. August 1940. p.22-26.

Study of the use and practicability of electric heat for warming drinking water for livestock. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.35.

Water Supply, Rural.

Water systems and bathrooms for farm homes. By Willard J. Luff. Rural electrification news. v.6, no.1. September 1940. p.9-10.

Waterproofing.

Dry basements. By Ronald Allwork. Pencil points. v.21, no.10. October 1940. p.667-674.

Weeds.

Canada thistle and similar weed control implements. In fifty-second annual report of Purdue university. Agricultural experiment station. Lafayette, Ind., 1939. p.38.

Cultural control of bindweed. By C. W. Smith. Agricultural engineering. v.21, no.12. December 1940. p.468.

Drouth aids weeds. By L. S. Evans. Farm implement news. v.61, no.18. September 5, 1940. p.31.

Electrical weed control. By E. M. Dieffenbach. Agricultural engineering. v.21, no.12. December 1940. p.486,488.

Equipment for chemical weed control. By O. C. French. Agricultural engineering. v.21, no.12. December 1940. p.487-488.

Problem of weed control. By W. S. Ball and W. W. Robbins. California cultivator. v.87, no.25. December 14, 1940. p.673-683.

Weed control in western Canada. By Evan A. Hardy. Agricultural engineering. v.21, no.12. December 1940. p.476.

Weed control study reported by station. Grain & feed review. v.29, no.12. August 1940. p.41.

Whips weeds with row crops. By Lamont Johnson. Western farm life. v.42, no.24. December 15, 1940. p.5,9.

Wood.

Inspection of wood. Part 2. By W. Elwood Rossnagel. Power plant engineering. v.44, no.12. December 1940. p.56-59. Discusses further defects that should be looked for in inspection of wood and also how to use wood that is free from these objectionable defects.

New wood treatment simplifies bending. By J. L. Stearns. Agricultural news letter. v.8, no.6. November-December 1940. p.88-89.